Health Risk Behaviors

1998

Michigan Department of Community Health
MDCH
John Engler, Governor
James K. Haveman, Jr., Director

State of Michigan
Governor-John Engler

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BEHAVIORAL RISK FACTOR SURVEY SUMMARY MICHIGAN 1998

BRFS

This report presents estimates from the 1998 Michigan Behavioral Risk Factor Survey (BRFS). The BRFS is a statewide telephone survey of Michigan residents, age 18 and older. This survey is the only source of state-specific, population-based estimates of the prevalence of various behaviors, medical conditions, and preventive health care practices among Michigan adults.

All prevalence rates in this report represent estimates of actual (crude) proportions of the adult population, except for estimates by race-gender. The estimates that compare the four race-gender groups have been age-adjusted (or standardized) to the projected year 2000 population by the direct method. This was done because the age distributions of Michigan's white and black populations are different and many risk factors vary by age. The age-adjusted estimates facilitate comparisons among the race-gender groups. All results from the 1998 Michigan BRFS presented in this summary have been weighted as described in the methods section and can be interpreted as estimates of risk and healthful behavior prevalence among the general adult population of Michigan.

Selected Risk Factors	State Estimates	National Estimates		
	Michigan (%)	Median (%)[1]	Range (%)[2]	Ranking[3]
General Health Fair or Poor	14.8	12.7	9.9-23.9	18th
No Health Care Coverage	7.8	13.0	5.9-23.6	40th
Current Cigarette Smoking	27.5	23.0	14.2-30.8	4th
Overweight	34.8	32.4	22.5-37.8	9th[4]
Ever Told Have Diabetes	6.8	5.4	2.8-7.8	3rd[5]
No Leisure-Time Physical Activity	21.7	27.4	17.1-51.3	42nd
Fruits and Vegetables <5 Times per Day	73.7	76.2	68.1-90.9	40th
Never Had Mammogram (Women Aged 40+)	10.8	15.3	8.4-27.5	46th

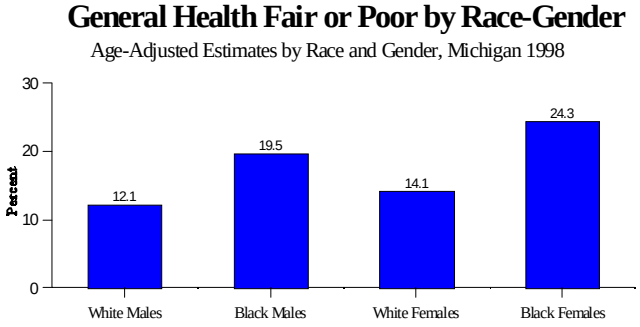
[1] The median value among all state-level prevalence estimates.
[2] The lowest prevalence and the highest prevalence among all states.
[3] Compared with other states participating in the 1998 BRFSS (not including Washington D.C. or Puerto Rico). Rank=1 indicates the highest prevalence of a risk factor or behavior. National Rankings were taken from the CDC 1998 BRFSS Summary Prevalence Report.
[4]Tied with two other states. [5]Tied with one other state.

PERCEIVED HEALTH STATUS

GENERAL HEALTH FAIR OR POOR--*Proportion of respondents who reported that their health, in general, was fair or poor.*

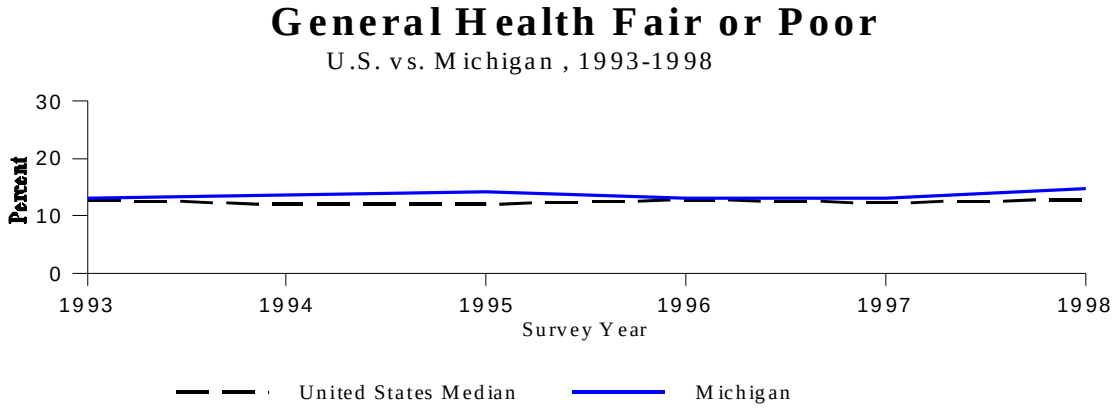
Poor self-reported health status is a good predictor of subsequent illness, use of health care services, and premature death.[1] Nearly 15 percent (14.8 percent) of Michigan respondents reported that in general their health status was fair or poor. Perception of fair or poor health status increased dramatically with age and was inversely related to education level. Those who attained a higher level of education were less likely to perceive their general health status as fair or poor. Females were more likely to report a fair or poor health status than males (16.0 percent vs. 12.5 percent). Since 1993, the proportion of Michigan respondents who perceived their health as fair or poor has remained at or above the national median.

Demographic Characteristics	General Health Fair or Poor
TOTAL	**14.8 ± 1.5**
AGE	
18-24 Years	7.1 ± 3.7
25-34 Years	6.7 ± 2.4
35-44 Years	9.3 ± 2.5
45-54 Years	15.0 ± 3.5
55-64 Years	20.8 ± 5.3
65-74 Years	28.5 ± 6.3
75+ Years	34.5 ± 7.3
GENDER	
Male	12.5 ± 2.2
Female	16.0 ± 2.0
EDUCATION	
Less than H.S.	32.0 ± 6.3
H.S. Graduate	18.9 ± 2.9
Some College	10.6 ± 2.2
College Graduate	5.7 ± 1.9



Black females were more likely than white females to report that their general health was fair or poor. There was no significant difference between black males and white males.

All estimates for race have been age-adjusted to the projected year 2000 population.



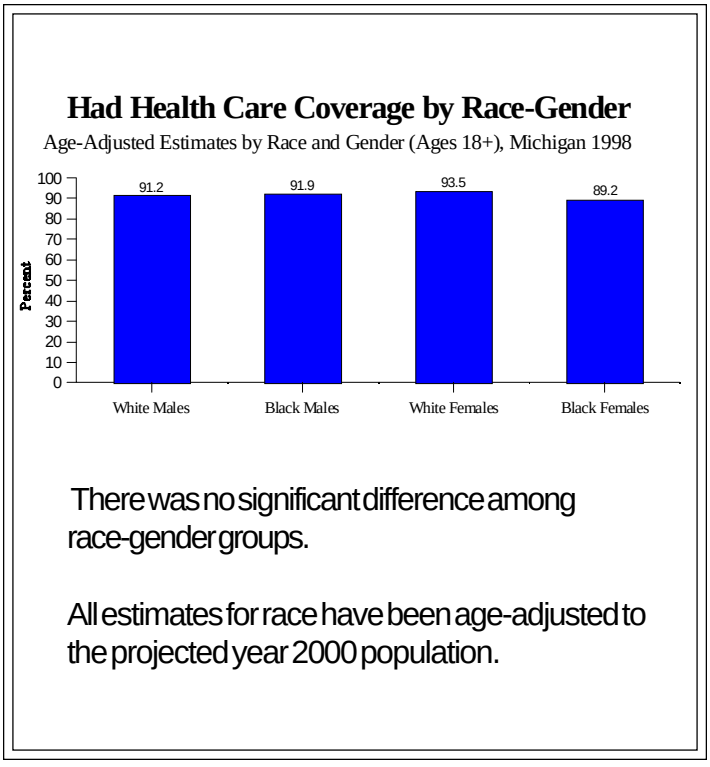
HEALTH CARE ACCESS

HEALTH CARE ACCESS--*Proportion of respondents who reported they had any kind of health care coverage (ages 18 and older).*

Lack of health care coverage and the resources to pay medical bills leads many Americans to delay making needed visits to physicians, and therefore to receive fewer life-saving screening tests and fewer immunizations.[2] The uninsured have more severe illnesses and are more likely to die prematurely than the insured.[3]

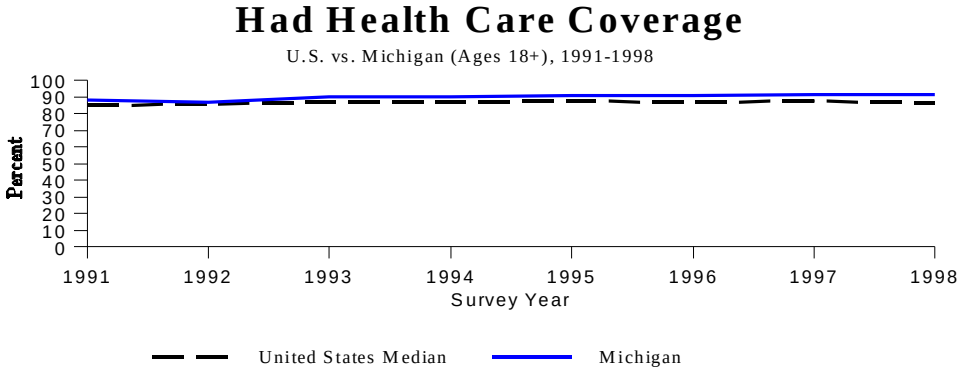
In the 1998 BRFS, 92 percent of Michigan adults reported that they had some kind of health care coverage. The proportion of adults with health care coverage increased with age and education level. The nearly 100 percent coverage for those 65 years and older was most likely due to Medicare coverage.

Demographic Characteristics	Had Health Care Coverage
Total	**92.2 ± 1.2**
AGE	
18-24 Years	87.0 ± 4.4
25-34 Years	86.8 ± 3.3
35-44 Years	92.0 ± 2.4
45-54 Years	94.5 ± 2.3
55-64 Years	93.3 ± 3.3
65-74 Years	99.3 ± 1.1
75+ Years	99.3 ± 1.3
GENDER	
Male	91.2 ± 1.9
Female	93.0 ± 1.4
EDUCATION	
Less than High School	88.2 ± 4.6
High School Graduate	89.2 ± 2.3
Some College	93.4 ± 1.9
College Graduate	96.1 ± 1.5



There was no significant difference among race-gender groups.

All estimates for race have been age-adjusted to the projected year 2000 population.



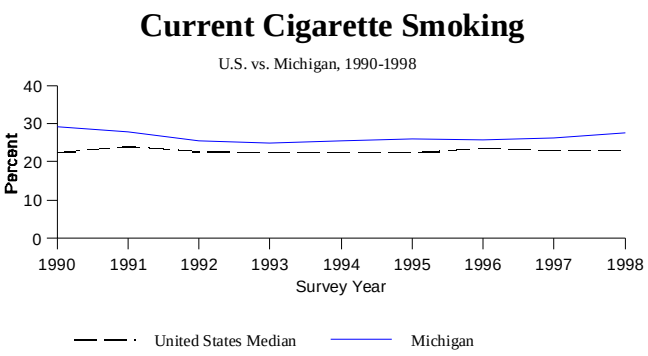
SMOKING

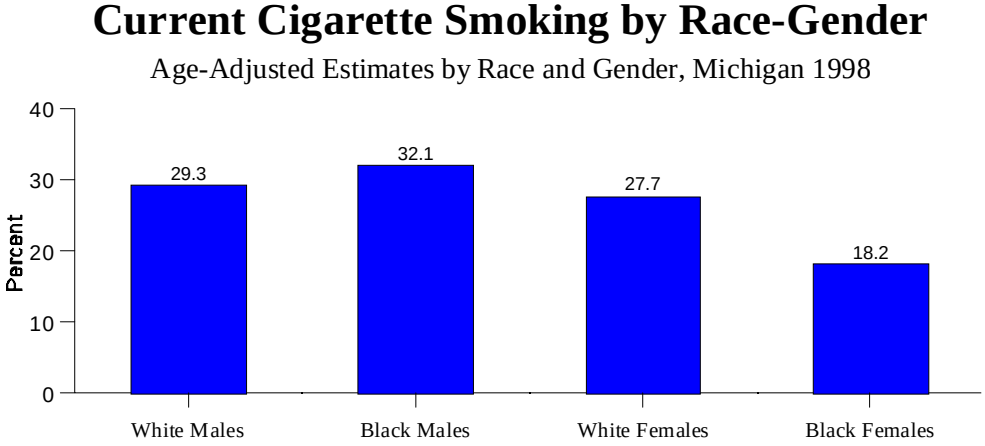
CURRENT CIGARETTE SMOKING -- *Proportion of respondents who reported that they had ever smoked at least 100 cigarettes in their life and they currently smoke cigarettes.*

Smoking is one of the most preventable causes of death.[4] One-in-five deaths result from smoking, claiming more than 400,000 lives in the United States each year.[4] It has been well documented that smoking is a major contributor to deaths from heart disease, lung disease, and cancer. Nearly one-third of all cancer deaths are related to smoking.[5]

An estimated 27.5 percent of Michigan adults were current cigarette smokers in 1998. Respondents with less than a high school education were more likely to report being a current cigarette smoker compared to respondents who graduated from college (34.6 percent vs. 12.6 percent). The proportion of respondents who reported that they were current cigarette smokers decreased with age. An estimated 40.7 percent of respondents in the age group 18-24 were current cigarette smokers. They represented the age group with the highest proportion of current smokers in Michigan and the proportion of smokers in this age group has increased by nearly 8 percentage points since 1990.

Demographic Characteristics	Current Cigarette Smoking
TOTAL	**27.5 ± 1.9**
AGE	
18-24 Years	40.7 ± 6.6
25-34 Years	35.3 ± 4.6
35-44 Years	28.6 ± 4.0
45-54 Years	28.4 ± 4.5
55-64 Years	21.8 ± 5.4
65-74 Years	13.1 ± 4.8
75+ Years	5.6 ± 3.9
GENDER	
Male	29.8 ± 3.0
Female	25.4 ± 2.4
EDUCATION	
Less than H.S.	34.6 ± 6.5
H.S. Graduate	35.8 ± 3.7
Some College	28.6 ± 3.4
College Graduate	12.6 ± 2.6





White females were more likely to be current cigarette smokers than black females. There was no significant difference between white males and black males.

All estimates for race have been age-adjusted to the projected year 2000 population.

DIABETES

DIABETES --*Proportion of respondents reporting that they had ever been told by a physician that they have diabetes (gestational diabetes excluded).*

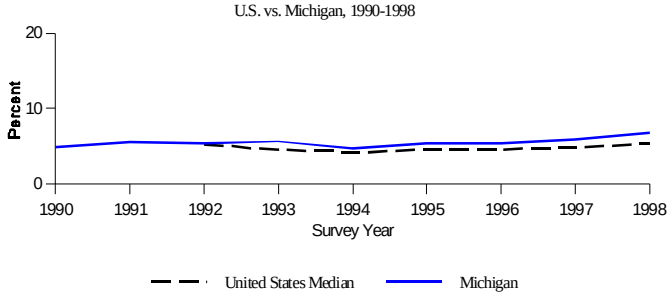
Diabetes causes the body either to not produce or not properly use insulin, a hormone secreted by the pancreas. Diabetes is the seventh leading cause of death in the United States and in Michigan.[6] Approximately 16 million Americans have diabetes, but nearly one-third are undiagnosed.[7] Diabetes is both a disease and a risk factor for other diseases. People diagnosed with diabetes are two-to-four times more likely to have a heart attack or stroke compared with people without diabetes.[7] It is the leading cause of new cases of blindness, end-stage renal disease, and lower extremity amputations.[8]

An estimated 6.8 percent of Michigan adults had ever been told by a physician that they have diabetes. This proportion increased with age and decreased with education level. Since 1992 Michigan's overall prevalence has been consistently higher than the national median.

Demographic Characteristics	Ever Told Have Diabetes
TOTAL	**6.8 ± 1.1**
AGE	
18-24 Years	2.3 ± 2.2
25-34 Years	2.0 ± 1.3
35-44 Years	3.1 ± 1.4
45-54 Years	7.6 ± 2.6
55-64 Years	13.6 ± 4.6
65-74 Years	17.8 ± 5.6
75+ Years	10.3 ± 4.7
GENDER	
Male	5.9 ± 1.6
Female	7.4 ± 1.5
EDUCATION	
Less than H.S.	14.0 ± 4.9
H.S. Graduate	6.7 ± 1.9
Some College	5.4 ± 1.7
College Graduate	4.8 ± 1.8

Ever Told Have Diabetes

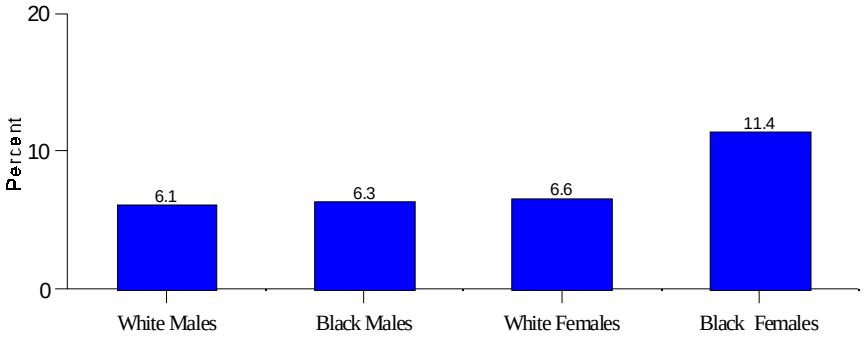
U.S. vs. Michigan, 1990-1998



**U.S. data not available for 90-91.

Ever Told Have Diabetes by Race-Gender

Age-Adjusted Estimates by Race and Gender, Michigan 1998



There was no significant difference among race-gender groups.

All estimates for race have been age-adjusted to the projected year 2000 population.

WEIGHT STATUS AND DIET

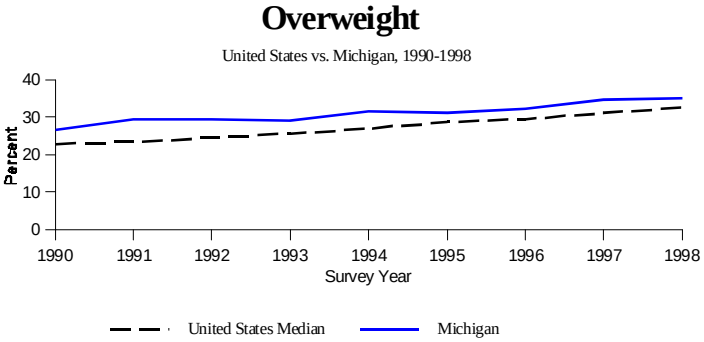
OVERWEIGHT AND FRUITS AND VEGETABLES - *-Overweight- Proportion of respondents with a body mass index ≥27.8 for men and ≥27.3 for women (pregnant women were excluded from this analysis). "Five a Day"-Proportion of respondents who reported consuming fruits (including juice) and vegetables five or more times per day.*

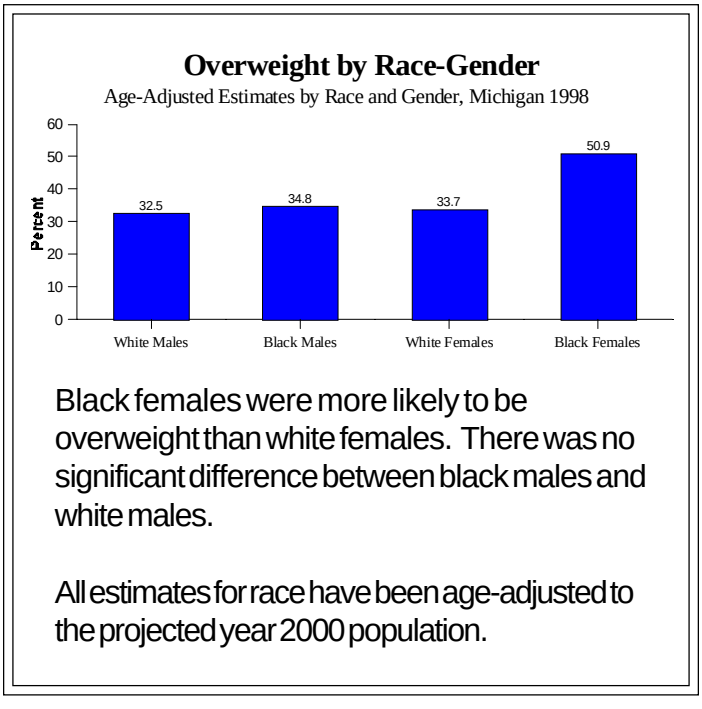
Obesity is a growing epidemic that is threatening the lives of millions of Americans. Being overweight increases the risk for many chronic diseases such as heart disease, stroke, diabetes, and certain types of cancer.[9] Thirty to 40 percent of coronary heart disease deaths may be attributed to obesity and high cholesterol.[10]

It was estimated that nearly 35 percent of Michigan's adult population was overweight in 1998. This percentage of overweight Michigan adults has generally been increasing, mirroring a similar national trend. The proportion of Michigan adults who were overweight increased with age up until 75 years and older and then decreased. College graduates had the lowest proportion of overweight respondents among education categories.

Data from the 1998 BRFS indicated that only about 26 percent of Michigan adults in 1998 ate the recommended five or more servings of fruits and vegetables daily. Respondents aged 65 years and older and those who had obtained a college degree were more likely to eat fruits and vegetables at least five times daily.

Demographic Characteristics	Overweight	Five Fruits and Vegetables Daily
TOTAL	**34.8 ± 2.1**	**26.4 ± 1.9**
AGE		
18-24 Years	13.6 ± 4.4	24.6 ± 5.7
25-34 Years	32.8 ± 4.7	18.4 ± 3.8
35-44 Years	37.5 ± 4.4	21.5 ± 3.6
45-54 Years	42.6 ± 5.0	29.8 ± 4.5
55-64 Years	43.7 ± 6.6	24.5 ± 5.5
65-74 Years	43.3 ± 7.0	37.4 ± 6.7
75+ Years	25.0 ± 6.9	45.0 ± 7.9
GENDER		
Male	33.3 ± 3.1	20.9 ±2.8
Female	36.2 ± 2.8	31.3 ±2.5
EDUCATION		
Less than H.S.	37.5 ± 6.6	26.2 ± 6.0
H.S. Graduate	36.7 ± 3.7	21.6 ± 3.1
Some College	37.8 ± 3.8	23.3 ± 3.2
College Graduate	27.7 ± 3.8	36.2 ± 4.0





Black females were more likely to be overweight than white females. There was no significant difference between black males and white males.

All estimates for race have been age-adjusted to the projected year 2000 population.

PHYSICAL ACTIVITY

NO LEISURE-TIME PHYSICAL ACTIVITY--
Proportion of respondents who reported they did not participate in any physical activities, recreation, or exercises in their leisure time (such as running, golfing, or walking for exercise) within the past month.

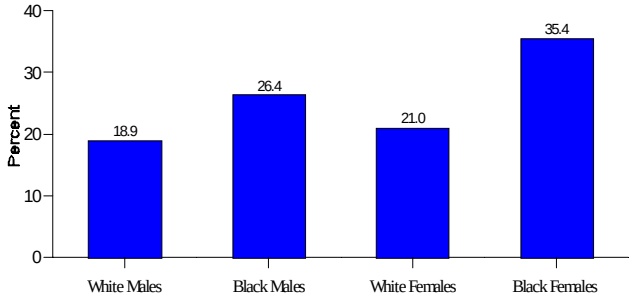
A lifestyle characterized by physical inactivity and poor dietary habits is a leading cause of premature death in the United States, second only to tobacco use.[11] People who are usually inactive can improve their health and reduce their risk of developing or dying from heart disease, diabetes, high blood pressure, and colon cancer by becoming even moderately active on a regular basis.[12] By including regular physical activity in their daily routines, people of all ages can obtain health benefits.

Nearly 22 percent of Michigan adults reported that they did not participate in any physical activity during their leisure time in the past month. Female respondents were more likely to be physically inactive compared with males (23.8 percent vs. 19.3 percent). The proportion of respondents reporting no leisure-time physical activity increased with age. Risk from an inactive lifestyle was highest for respondents with less than a high school education.

Demographic Characteristics	No Leisure-Time Physical Activity
TOTAL	**21.7 ± 1.7**
AGE	
18-24 Years	12.6 ± 4.2
25-34 Years	18.5 ± 3.8
35-44 Years	21.2 ± 3.6
45-54 Years	21.6 ± 4.1
55-64 Years	21.8 ± 5.3
65-74 Years	29.1 ± 6.5
75+ Years	36.6 ± 7.5
GENDER	
Male	19.3 ± 2.6
Female	23.8 ± 2.4
EDUCATION	
Less than H.S.	36.7 ± 6.6
H.S. Graduate	28.2 ± 3.4
Some College	18.1 ± 2.8
College Graduate	10.7 ± 2.6

No Leisure-Time Physical Activity by Race-Gender

Age-Adjusted Estimates by Race and Gender, Michigan 1998

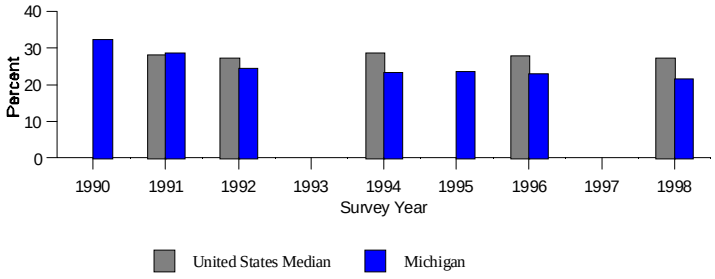


Black females were more likely to report no leisure-time physical activity compared to white females. There was no significant difference between black males and white males.

All estimates for race have been age-adjusted to the projected year 2000 population.

No Leisure-Time Physical Activity

U.S. vs. Michigan 1990-1998



** Data not collected in 1993 or 1997

BREAST CANCER SCREENING

APPROPRIATELY-TIMED BREAST SCREENING--*Proportion of female respondents aged 40 and older who had both a clinical breast exam and screening mammogram within the past year.*

Excluding skin cancer, breast cancer is the most common cancer among American women. In most cases, the earlier breast cancer is detected, the better the survival rate.[13] Mammography can detect breast cancer an average of 1.7 years before the woman can feel the lump.[13]

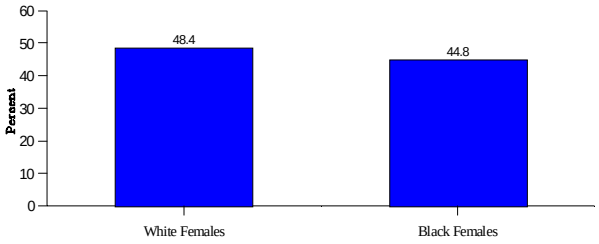
The American Cancer Society and the National Cancer Institute recommend that women aged 20-39 should have a clinical breast examination every three years. After age 40, every woman should have an annual screening mammogram and clinical breast exam by a health professional.

In 1998, only one-half (51.2 percent) of female respondents in Michigan aged 40 and older reported that they had both a mammogram and clinical breast exam within the past year. The proportion who had appropriately-timed breast screening was highest among those in the 50-64-year-old age group. Women with at least some college education were more likely to have had appropriately-timed breast screening compared with women with less than a high school education.

Demographic Characteristics	Appropriately-Timed Breast Screening
TOTAL	**51.2 ± 3.8**
AGE	
40-49 Years	46.5 ± 6.5
50-64 Years	62.1 ± 6.3
65+ Years	45.2 ± 6.6
EDUCATION	
Less than H.S.	41.6 ± 10.5
H.S. Graduate	49.0 ± 6.3
Some College	54.1 ± 7.2
College Graduate	56.9 ± 7.8

Appropriately-Timed Breast Screening (Women 40+)

Age-Adjusted Estimates by Race, Michigan 1998

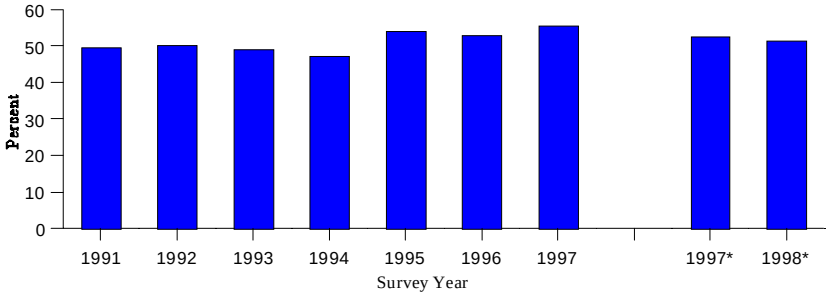


There was no significant difference among race-gender groups.

All estimates for race have been age-adjusted to the projected year 2000 population.

Appropriately-Timed Breast Screening

Michigan Women Aged 40+, 1991-1998



*The recommended time frame for mammography screening changed in 1997 to annual for all women over 39 years of age. For previous years, the recommendation was biennial screening for women aged 40-49 and annual screening for women aged 50+. As appropriate breast screening is a combination of appropriate clinical breast examination and appropriate mammography, this indicator changes as well.

National data are not included in this graph due to differences in definitions used by MDCH and the Centers for Disease Control and Prevention.

CERVICAL CANCER SCREENING

APPROPRIATELY-TIMED PAP SCREENING-- *Proportion of all female respondents aged 18 and older who had a Pap test within the previous three years. (Respondents whose last Pap test was done because of a problem were not included in this analysis.)*

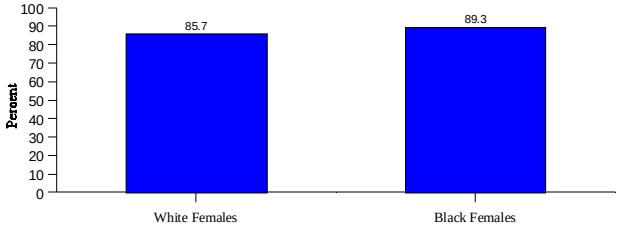
Demographic Characteristics	Appropriately-Timed Pap Screening
TOTAL	**85.8 ± 1.9**
AGE	
18-29 Years	87.6 ± 4.2
30-39 Years	94.5 ± 2.7
40-49 Years	88.6 ± 4.0
50-64 Years	86.9 ± 4.0
65+ Years	70.2 ± 5.7
EDUCATION	
Less than High School	78.5 ± 7.1
High School Graduate	82.4 ± 3.7
Some College	88.6 ± 3.1
College Graduate	89.6 ± 3.3

The incidence of invasive cervical cancer has decreased significantly over the last 40 years, in large part due to early detection methods.[13] The Papanicolaou test, or Pap smear, is the recommended method for screening for potential cancer of the cervix. The American Cancer Society recommends that all women begin yearly Pap tests at age 18 or when they become sexually active, whichever occurs earlier. If a woman has had three negative annual Pap tests in a row, this test may be done less often at the judgment of a woman's health care provider but should be done at least every three years. There are several factors that increase a woman's risk of developing cervical cancer: having first intercourse at an early age, having multiple sex partners, developing a genital infection with human papillomavirus, and smoking.[13] Cervical cancer screening is lifesaving. Women found to have precancerous cervical lesions or to have cancer in its earliest stage have almost a 100 percent survival rate with timely and appropriate treatment and follow-up.[13] The Pap test provides the means to prevent nearly all deaths from cervical cancer.

An estimated 86 percent of Michigan women aged 18 years and older had a screening Pap test within the previous three years. The proportion who had a Pap test within the previous three years was lowest among those over age 64. Women who had a college education were more likely to have had appropriately-timed Pap tests compared with women who had only a high school education. There appears to be no change in the prevalence rates for having had appropriately-timed screening Pap tests across survey years in Michigan.

Appropriately-Timed Pap Screening

Age-Adjusted Estimates by Race, Michigan 1998

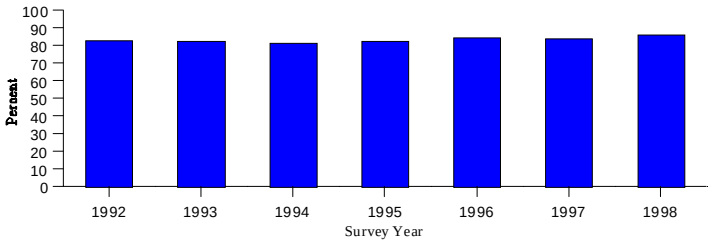


There was no significant difference among race-gender groups.

All estimates for race have been age-adjusted to the projected year 2000 population.

Appropriately-Timed Pap Screening

Michigan Women Age 18+, 1992-1998



National data is not represented in this graph due to differences in definitions used by MDCH and the Centers for Disease Control and Prevention.

HIV/AIDS

PERCEIVED RISK OF HIV HIGH OR MEDIUM--
Proportion of respondents who reported that they thought their risk of HIV infection was high or medium (included respondents aged 18-64; "don't know" was considered a valid response).

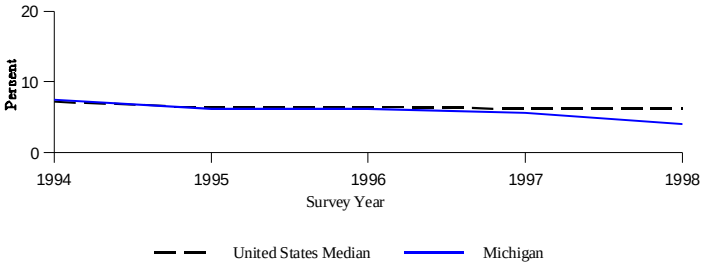
HIV, the virus that causes AIDS, can be found in blood, semen, and vaginal secretions of an infected person. The virus is mainly spread by unprotected sexual intercourse and sharing needles with an HIV-infected person. Babies born to HIV-infected women may also become infected.

The majority of cases of HIV can be prevented by avoiding unprotected sex and the use of illegal injection drugs. Condom use, limiting the number of sexual partners, and not sharing needles can lower the risk of infection.

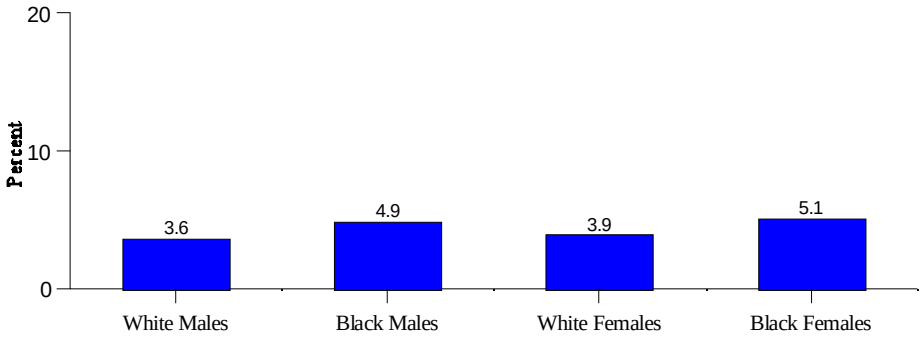
Respondents were asked what they thought their chances were of becoming infected with HIV. Four percent of respondents reported that they perceived their risk of becoming infected with HIV to be high or medium. The perceived risk of HIV infection tended to decrease with age and was similar across education levels. The proportion of Michigan adults who perceive their risk as high or medium continues to be below the national median.

Demographic Characteristic	Perceived Risk of HIV High or Medium
TOTAL	**4.0 ± 0.9**
AGE	
18-24 Years	4.7 ± 2.6
25-34 Years	5.7 ± 2.2
35-44 Years	3.8 ± 1.7
45-54 Years	3.0 ± 1.6
55-64 Years	2.3 ± 1.5
GENDER	
Male	3.9 ± 1.3
Female	4.2 ± 1.2
EDUCATION	
Less than High School	4.3 ± 3.4
High School Graduate	4.1 ± 1.5
Some College	3.7 ± 1.6
College Graduate	4.3 ± 1.7

Perceived Risk of HIV High or Medium
U.S. vs. Michigan, 1994-1998



Perceived Risk of HIV Infection High or Medium
Age-Adjusted Estimates by Race and Gender, Michigan 1998



There was no significant difference among race-gender groups.

All estimates for race have been age-adjusted to the projected year 2000 population.

HANDGUN ACCESS

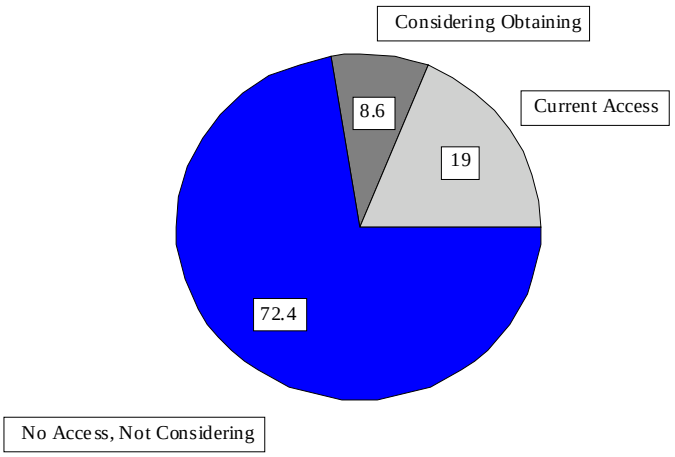
A module was included in the 1998 BRFS to assess the percentage of Michigan adults who had access to a handgun in their homes or who had considered obtaining a handgun. Nineteen percent of respondents reported that they currently had access to a handgun in their homes, and 8.6 percent reported that they had considered obtaining a handgun in the past year. Protection was most often reported as the primary reason for having a handgun in the home (27.3 percent) and for considering obtaining a handgun (61.1 percent). Of those who had considered purchasing a handgun for protection, 36 percent reported that they were no longer considering the purchase. Most of those who had considered obtaining a handgun, and then decided not, to reported safety concerns as the primary reason they changed their mind.

Michigan adults were asked if they were aware of one or more incidents of unauthorized possession of a handgun by a minor (under 21 years of age) in their neighborhood. Eight percent (8.2 percent) of respondents reported that they were aware of such an incident in their neighborhood.

Analysis was based on three quarters of data due to a question change after the first quarter of data collection.

Handgun Access

Michigan Adults, 1998



Handgun Indicators	
Currently Had Access to Handgun in Home	19.0% ± 2.0
Primary Reason for Handgun Protection	27.3% ± 4.5
Considered Obtaining a Handgun	8.6% ± 1.4
Protection Primary Reason for Considering	61.1% ± 2.8
No Longer Considering a Handgun	36.0% ± 8.4
Safety Primary Reason for No Longer Considering a Handgun	51.9% ± 13.8
Aware of One or More Incidents of Unauthorized Possession of a Handgun by a Minor	8 .2% ± 1.3

CARDIOVASCULAR DISEASE PREVENTION

Cardiovascular disease (CVD), principally heart disease and stroke, is the nation's leading killer of both men and women among all racial and ethnic groups.[14] Almost one-fourth of the nation's population has some form of CVD.[14] CVD is also the leading cause of death in Michigan.[6]

Prevention is important in reducing CVD mortality. A limited number of health-related behaviors and conditions contribute markedly to cardiovascular disease: tobacco use, lack of physical activity, and nutrition-related conditions (obesity, high cholesterol, high blood pressure, and diabetes). Studies have shown that people can reduce their risk of CVD by modifying their behavior.

Respondents were asked a series of questions about advice that they received from health care professionals to lower their risk of heart disease or stroke by changing specific behaviors.

Nearly 40 percent of respondents were advised to eat fewer high fat and high cholesterol foods. One-in-10 were advised to take medications specifically to reduce high cholesterol; likewise, nearly 2-in-10 were advised to take medications to lower blood pressure. Twenty-one percent responded that a health care professional advised them to lose weight and nearly 40 percent were told to exercise more. Among current smokers, approximately 70 percent were advised by a health care professional to quit smoking.

% 95% CI	Proportion of respondents advised by a doctor to lower their risk of CVD by...
38.5 ± 2.1	...eating fewer high fat or high cholesterol foods
21.0 ± 1.7	...losing weight (among all respondents)
36.3 ± 2.1	...exercising more or being more active
17.8 ± 1.6	...taking medications to specifically reduce high blood pressure
9.4 ± 1.3	...taking medications to specifically reduce high blood cholesterol
68.6 ± 3.9	...quitting smoking (among current smokers)

Selected Risk Factors and Health Indicators

Risk Factor/Health Indicator	Total	Risk Factor/Health Indicator	Total
No Health Care Coverage (Ages 18-64)	9.3% ±1.4	No Leisure-Time Physical Activity	21.7% ±1.7
No Routine Checkup in Last Year	26.2% ±1.9	Sedentary Lifestyle (<20 minutes, 3x/week)	49.6% ±2.2
Cost Prevented Doctor Visit	8.6% ±1.2	No Regular and Sustained Activity (<30 minutes, 5x/week)	75.1% ±1.9
Current Smoker	27.5% ±1.9	Never Had a Blood Stool Test (Age 50+)*	45.9% ±3.6
Average Number of Cigarettes Smoked per Day	16.9±0.8	Never Had a Proctoscopic Exam (Age 50+)*	50.0% ±3.6
Ever Smoked a Cigar	47.9% ±2.1	Sleeping Position of Infants on Back**	45.9% ±2.2
Smoked a Cigar in Past Month	6.3% ±1.0	Ever Tested for HIV	43.8% ±2.3
General Health Fair or Poor	14.8% ±1.5	Encourage Condom Use Among Sexually Active Teenagers	91.0% ±1.3
Physical Health Poor (mean days in past 30 days)	3.8±0.4	Mean Grade for AIDS Education	4.7±0.1
Mental Health Poor (mean days in past 30 days)	3.7±0.4	Completed CPR Course in Past Two Years	18.0% ±1.7

*State added questions.

**Proportion of respondents who reported on back for the position they would place (or usually do, if they currently cared for a child) a child one year old or younger for sleeping. Estimate is a combination of responses from the following two questions. Of those who care for a child who is less than 12 months of age, for any part of the day or night, "In what position do you usually place the child for sleeping?" Of those who do not currently care for a child less than 12 months of age, "If you were caring for a child who was less than 12 months of age, in what position would you usually place the child for sleeping?"

METHODS

The Behavioral Risk Factor Surveillance System (BRFSS) consists of annual surveys coordinated through a cooperative agreement with the Centers for Disease Control and Prevention. The annual Michigan surveys follow the overall CDC telephone survey protocol for BRFSS.[15] The 1998 Michigan BRFS data were collected quarterly by the Institute for Public Policy and Social Research at Michigan State University. The sample of telephone numbers was selected using a list-assisted, random-digit-dialing methodology with disproportionate stratification based on phone bank density.

The 1998 BRFS data were weighted to adjust for the probabilities of selection (based on the probability of telephone number selection, the number of adults in the household, and the number of residential phone lines) and a poststratification weighting factor that adjusted estimates (using 1997 Michigan intercensal population distributions) by age, sex, and race. Calculations of the prevalence estimates and confidence interval limits were performed using SUDAAN, a statistical computing program that was designed for analyzing data from multistage sample surveys.[16] All race-gender estimates were age-adjusted to the projected year 2000 U.S. population estimates; all other estimates are crude estimates.

Unless otherwise specified, respondents who answered that they did not know or refused to answer were not included in the calculation of estimates.

SAMPLE RESULTS

A total of 15,850 telephone numbers were used for the 1998 Michigan BRFS. The final call dispositions for the sample numbers fell into the following categories: 2,535 completed interviews, 1,731 refusals, 6,757 non-working numbers, 1,109 ring-no-answers, 2,643 businesses, 176 households reached but no members eligible, 637 eligible respondents selected but not interviewed, 119 informants or eligible respondents with language barriers, five busy numbers, and 138 informants or eligible respondents unable to participate. The CASRO (Council of American Survey Organizations) response rate, which includes a portion of the dispositions with unknown eligibility in the denominator of the rate, was 48.1 percent. Forty-eight percent (47.5 percent) of all household contacts resulted in a completed interview; 32.4 percent of all household contacts refused to participate.

REFERENCES

1. McCallum J, Shadbolt B, Wang D. Self-rated health and survival: a 7-year follow up study of Australian elderly. *Am J Pub Health*, 1994;84:1100-1105.
2. Weissman JS, Stern R, Fielding SL, Epstein AM. Delayed access to health care: risk factors, reasons, and consequences. *Ann Intern Med*, 1991;114:325-331.
3. Szabo J. Doctors sound alarm on plight of uninsured. Physicians Financial News, 1999;17: 1-3.
4. The American Cancer Society. "Tobacco Information," *ACS Tobacco Control*, <http://www.cancer.org/tobacco/main.html> (January 18, 2000).
5. The Centers for Disease Control and Prevention: Office of Women's Health. "Women Who Smoke," *Tobacco Use*, <http://www.cdc.gov/od/owh/whtob.htm> (January 18, 2000).
6. U.S. Department of Health and Human Services and The Centers for Disease Control and Prevention. *Chronic Diseases and Their Risks: The Nation's Leading Causes of Death*. U.S. Department of Health and Human Services and The Centers for Disease Control and Prevention Publication, 1999. Atlanta GA, National Center for Chronic Disease Prevention and Health Promotion.
7. The Centers for Disease Control and Prevention: Office of Communication Media Relations. "Diabetes," *CDC Media Relations: Facts About Diabetes*, November 4, 1999, <http://www.cdc.gov/od/oc/media/fact/diabetes.htm> (January 18, 2000).
8. The Centers for Disease Control and Prevention: Chronic Disease Prevention. "Diabetes," *CDC Chronic Disease Prevention: Impact of Diabetes*, June 1, 1999, <http://www.cdc.gov/nccdphp/diabetes.htm> (January 18, 2000).
9. Michigan Department of Community Health, "Overweight," *Health Risk Behaviors*, <http://www.mdch.state.mi.us/dch/hlpd/2.htm> (February 1, 2000).
10. The Centers for Disease Control and Prevention: Chronic Disease Prevention. "Nutrition," *CDC Chronic Disease Prevention: Impact of Nutrition on Health*, June 1, 1999, <http://www.cdc.gov/nccdphp/nutrisk.htm> (February 1, 2000).
11. The Centers for Disease Control and Prevention, "Nutrition and Physical Activity," *CDC Program on Nutrition and Physical Activity*, June 1, 1999, <http://www.cdc.gov/nccdphp/dnpa> (February 1, 2000).
12. The Centers for Disease Control and Prevention, "Physical Activity," *Physical Activity and Health: A Report of the Surgeon General*, June 1, 1999, <http://www.cdc.gov/nccdphp/phyactiv.htm> (February 1, 2000).
13. The Centers for Disease Control and Prevention, "Breast and Cervical Cancer Screening: reventing Unnecessary Deaths Among Women," *The National Breast and Cervical Cancer arly Detection Program*, August 12, 1999<http://www.cdc.gov/cancer/nbccedp/about.htm> February 7, 2000).
14. The Centers for Disease Control and Prevention, "Cardiovascular Disease," *Cardiovascular Disease*, June 1, 1999, <http://www.cdc.gov/nccdphp/cardiov.htm> (March 1, 2000).
15. Office of Surveillance and Analysis, Centers for Disease Control and Prevention. *BRFSS Operations Manual 1998*. Atlanta, GA: Centers for Disease Control and Prevention, 1998.
16. Shah BV, Barnwell BG, Bieler GS. *SUDAAN User's Manual, Version 7.5*. Research Triangle Park, NC: Research Triangle Institute, 1997.

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